

Discrete Optimization - I

Homework 4

Due: November 6, 2003 in class

Page numbers refer to Chvatal, Linear Programming.

1. Solve the transshipment problem on the network in Figure 19.1, p. 292 for the b-vector $b=[2,0,10,5,3,-10,-10]$ and the c-vector as given on p. 295. For each iteration give the tree solution, y vector (label the tree nodes), and entering and leaving arc. Do a phase I as described either in class or as on pp.303-4.

2. P.319, problem 19.10

3. Find the optimal strategy for Alice and Bob for the following modification of the game of Morra. Each player hides 1, 2 or 3 coins, and guesses 1, 2 or 3. If the player guesses correctly how many coins the other player hid, s/he gets the coins hidden by the other player. Show the payoff matrix and solve the LP using any software package. Be sure to give both primal and dual solutions to the LP.